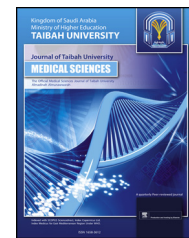




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## Women's access to healthcare services in the Jazan region of the KSA

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### المخلص

**أهداف البحث:** يعتبر تسهيل الوصول للخدمات الصحية ركيزة أساسية لأهداف المملكة الاستراتيجية 2030 الخاصة بالبعد الصحي والتي ترتبط ببرامج تحول القطاع الصحي. هدفت هذه الدراسة إلى التعرف على سهولة الوصول لخدمات الرعاية الصحية الحكومية على عينة من النساء في منطقة جازان، في المملكة العربية السعودية. هدفنا هو تقديم تحليل شامل للعوامل المؤثرة في سهولة وصول المرأة لخدمات الرعاية الصحية على عينة قوامها 494 سيدة يقمن في منطقة جازان. بالإضافة إلى ذلك، سعت هذه الدراسة إلى التعرف على العوامل الاجتماعية والديموغرافية التي تؤثر في سهولة الوصول للخدمات الصحية ودور الرضا عن الحياة الأسرية والتصورات الخاصة بالأدوار الاجتماعية للجنسين وأثرها في سهولة الوصول للخدمات.

**طرق البحث:** تم إجراء تحليل الانحدار الهرمي حيث شمل النموذج الأول الجنسية، التعليم، العمر، مكان الإقامة (المدينة أو منطقة نائية)، العمل، والعوامل الاجتماعية والديموغرافية الأخرى. وتضمن النموذج الثاني العوامل الديموغرافية بالإضافة إلى التقييمات الذاتية للصحة البدنية والعقلية وممارسة التمارين الرياضية بانتظام. أما النموذج الثالث فقد تضمن جميع المتغيرات السابقة بالإضافة إلى مقدار الرضا عن الحياة الأسرية والتصورات الخاصة بالأدوار الاجتماعية للجنسين.

**النتائج:** كشف التحليل الانحدار الهرمي أن مكان الإقامة، والعمر، والجنسية، والعمل، والصحة البدنية، والعقلية الجيدة، وممارسة الرياضة تتنبأ بسهولة حصول المرأة على خدمات الرعاية الصحية. وكانت المتغيرات المهمة الأخرى هي الرضا عن الحياة الأسرية، والذي تتنبأ بقدر أكبر من سهولة الوصول لخدمات الرعاية الصحية، بينما أوضحت نتائج الدراسة أن الميل إلى التمسك بالأدوار التقليدية للجنسين يتنبأ بصعوبة الوصول لخدمات الرعاية الصحية.

**الاستنتاجات:** تتمتع النساء اللواتي يقمن في المدينة بسهولة أكبر في الوصول لخدمات الرعاية الصحية مقارنة بالنساء المقيمت بالقرى والمناطق النائية. رضى المرأة عن علاقاتها العائلية يساهم بشكل ما في تسهيل وصولها لخدمات الرعاية الصحية. كما إن النساء اللواتي يؤمنن بالأدوار الاجتماعية التقليدية للجنسين قد يجدن صعوبة في الوصول للخدمات الصحية. يمكن لوضعي السياسات في وزارة الصحة استخدام نتائج هذا البحث لتعزيز سهولة الوصول إلى خدمات الرعاية الصحية للنساء في منطقة جازان. كما يمكن أن تعزز نتائج هذا البحث في تطوير برنامج تحول القطاع الصحي، وتحديدًا فيما يخص صحة المرأة خاصة في منطقة جازان وقراها وضواحيها والتي تستقطب اهتماماً ملحوظاً من الباحثين وصانعي القرار.

**الكلمات المفتاحية:** سهولة الوصول لخدمات الرعاية الصحية؛ برنامج التحول الصحي؛ أهداف التنمية المستدامة؛ صحة المرأة؛ جازان؛ المملكة العربية السعودية

### Abstract

**Objective:** Our study investigated women's access to governmental healthcare in the Jazan region of the KSA. Our purpose is to provide a comprehensive analysis of the determinates of women's perceptions of their own access to healthcare, considering various demographic factors, family life, and gender role beliefs.

**Methods:** We conducted a hierarchical regression analysis using data from a sample of 494 women. The first model included nationality, education, age, rurality, and other sociodemographic factors. The second model included the variables from the first model as well as self-ratings of physical and mental health and regular exercise. The third model included the variables from the first two models in addition to satisfaction with family life and gender role beliefs.

**Results:** Our analysis revealed that age, nationality, employment, and having good physical and mental health, and satisfaction with family life positively predicted women's perceptions of their access to healthcare.

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Adherence to traditional gender roles, however, predicted less accessibility.

**Conclusion:** Policymakers could use the outcomes of our study to enhance women's healthcare accessibility in Jazan region. The results could enhance the development and transformation of healthcare and women's health issues, particularly in understudied rural Saudi regions.

**Keywords:** Healthcare access; Healthcare transformation; Jazan; KSA; SDGs; Women's health

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## Introduction

The healthcare sector in the Kingdom of Saudi Arabia (KSA) shows great resilience during crises (e.g., COVID-19), and there is rapid development in the sector, particularly in virtual care, to ensure healthcare accessibility.<sup>1</sup> In 2016, the Ministry of Health (MOH) in KSA approved the Healthcare Transformation Program, which aimed to ensure a long, healthy, and productive life for all individuals. The ultimate goal was to create a more comprehensive, effective, and integrated healthcare system than existed before and to ensure everyone in KSA has access to high-quality healthcare.<sup>1,2</sup> Women's health is an important pillar of this program. Hence, the MOH has taken an essential step towards reinforcing Saudi women's autonomy, improving health services, and facilitating access to them, while also aiming to advance the achievement of the sustainable development goals (SDGs).

### *KSA's efforts toward women's access to healthcare*

KSA's strategic plan "Vision 2030" was announced in 2016 and has provided new opportunities and some challenges for the healthcare system.<sup>2</sup> It sets a new direction in identifying priorities, strategic goals, and objectives across all economic sectors in the Kingdom.<sup>2</sup> Women's education and empowerment are considered both significant determinants and promoters of health. One study showed that although females constitute 68% of the healthcare workforce in KSA, only 10.9% of women workers are Saudi nationals.<sup>3</sup> These figures demonstrate that concerted efforts are required to increase Saudi women's participation in the healthcare sector to 30%, as set by Vision 2030. In 2020, the private health sector owned 32% of hospitals and 24% of hospital beds; yet, private sector hospitals are concentrated in urban regions like Riyadh and Jeddah, with 40 hospitals in each of these two regions (accounting for 50.6% of all hospitals in the Kingdom). The Riyadh region has the country's highest number of private hospital beds (30.8%).<sup>4</sup> Still, women, and especially those living in rural areas, face several health challenges, as evident from the prevalence and nature of diseases and health challenges that affect them, including non-communicable diseases, breast cancer, violence, mental illness, and addiction.

The quality of the women's healthcare system and services in KSA might be affected mainly by location, norms, and socio-economic restrictions.<sup>5</sup> Accessibility to mental health services as well as quality reproductive healthcare might be hindered or unavailable to women due to location (such as rurality) or cultural beliefs (such as requiring a female healthcare provider for a female patient).<sup>3,6</sup> Vision 2030 attempts to increase women's integration into the workforce through e-learning and remote work. It aims to improve the overall structure of the KSA healthcare system and increase the number of female health practitioners. Yet there remains a need to address the issues of healthcare access in understudied regions.<sup>7</sup>

Accordingly, the dominant literature concerning women's status in KSA primarily considers women's inclusion in the workforce and public space. The scarcity of the literature on women's access to healthcare as patients prompted our current research because we not only scrutinize socio-economic discourses but also explore various demographic factors and sociocultural restraints that might impact women's access to healthcare services around Jazan, an understudied and rural, yet promising region.

### *Current study*

In this study, we conceptualized healthcare access as the ability of women in Jazan region to seek and obtain government provided healthcare. Our research examined women's own perceptions of their access to healthcare in this particular region of KSA. In the Jazan region, women's access to healthcare could be affected by a number of challenges, including high population density in more urban areas and limited and below standard healthcare services, which could be attributed to the shortage of qualified medical staff and hospitals.<sup>8</sup> Jazan is the smallest, but a rapidly developing, region in the Kingdom and it consists of three distinct zones: a highlands zone, a hill zone, and a coastal plain along the southern Red Sea coast. Jazan includes more than 100 islands and many small villages and valleys (see [Figure 1](#)).

Research evidence shows that the majority of Jazan region residents (68%) live in underserved areas in healthcare, suggesting that the population may lack adequate access to healthcare clinics and hospitals.<sup>9</sup> Moreover, poor awareness of disease infection<sup>10</sup> as well as a long waiting period to see a doctor<sup>11</sup> and the shortage of qualified female doctors<sup>8</sup> are dominant public healthcare issues in the Jazan region. A limitation in the literature is a lack of research evidence examining women's own perceptions of healthcare accessibility considering the recent policy reforms that aim to empower women. This paper is one of the first to specifically examine women's perceptions of their access to healthcare services in the Jazan region in the light of these recent policy reforms and the Saudi Vision 2030. The objectives of our study were to identify the predictors of women's perceptions of their own access to healthcare and to model the relationships among various variables (such as demographics, family life satisfaction, gender role beliefs, etc.) and women's access to healthcare accessibility.

In carrying out the objectives set out in our study, we formulated and tested various hypotheses. Based on our review of the literature within the KSA, we hypothesized that (1) sociodemographic factors such as age, marital status,

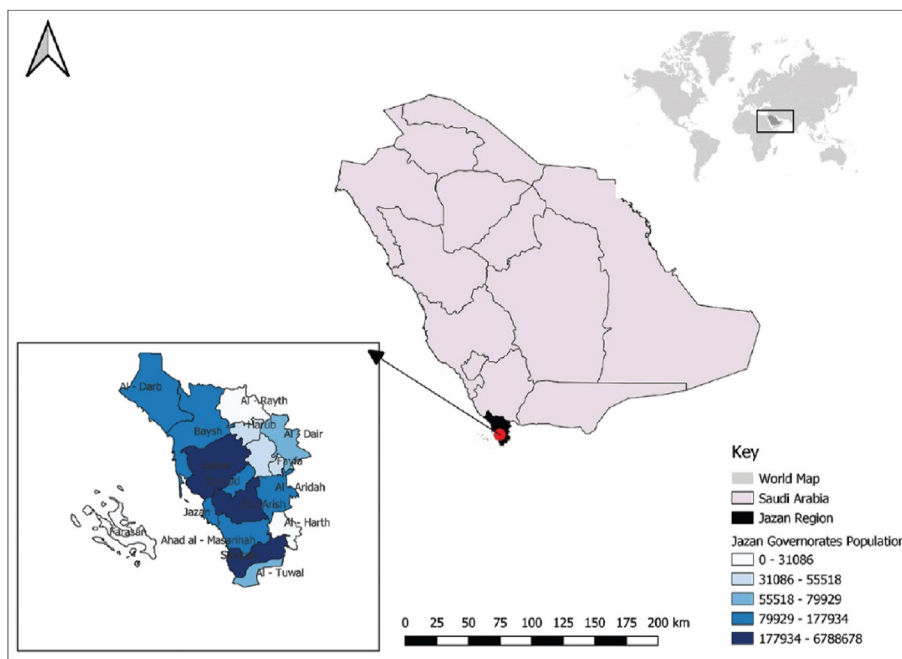


Figure 1: Jazan region map.

family size, employment, education, Saudi nationality, housing type (i.e., rent or own), number of children in the home, and residency (urban or rural) would impact women's accessibility to public healthcare; (2) physical and mental health and regular exercise would positively predict women's accessibility to public healthcare; (3) family life satisfaction would positively predict women's accessibility to public healthcare; and (4) gender role beliefs would predict women's accessibility to public healthcare.

The importance of our study cannot be overemphasized. First, it explores the level of women's accessibility to healthcare in Jazan; second, it identifies the predictors of women's healthcare accessibility; and third, it provides stakeholders and policymakers greater understanding of factors potentially limiting women's accessibility to public healthcare and how to prevent and overcome those limiting factors.

## Materials and Methods

### Participants

We used a cross-sectional study design to collect data in Jazan. The study sample consisted of current women residents ( $N = 494$ ) of the Jazan region. Women who met the following criteria and agreed with the research purpose were recruited: residents of the Jazan region, aged 20 years or older, and who have utilized the public healthcare system in the past six months. We used Krejcie and Morgan's<sup>12</sup> table for determining the sample size for the given population. For populations of 100,000 or more, a sample size of 384 is needed for 95% confidence that the sample values are within 5% of the true population values. In our study, we received a total of 494 completed responses, and decided not to include incomplete responses. This left us with more than the required sample size of 384, so the results of the study can be considered reliable.

### Measures

#### *The public healthcare accessibility measure*

For the purpose of our study, we developed a 13-item scale to measure public healthcare accessibility. We used face validity to create and refine the instrument.<sup>13</sup> Two experts in the field were asked to verify whether the items assess for the defined content of the measure. Using narrative comments, items were moved and modified accordingly. The calculated Cronbach's alpha was 0.71 for this newly-developed scale, suggesting acceptable reliability. An example item is, "I can access government healthcare from anywhere, regardless of my permanent location." After reverse scoring relevant items, higher scores on the scale indicate greater accessibility.

#### *The Satisfaction with Family Life Scale (SWFL)*

The SWFL consists of five items on a seven-point Likert-type scale and measures the level of satisfaction with family life.<sup>14</sup> The SWFL provides a brief, psychometrically sound, and widely applicable option for measuring satisfaction with family life regardless of country or parents' perspective.<sup>15</sup> Evidence of usability, criterion, and construct validity were established in previous studies using an Arab sample<sup>15</sup> and Turkish Muslim sample,<sup>16</sup> with Cronbach's alpha ranging from 0.94 to 0.79. An example item is "In most ways my family life is close to ideal," and higher scores on the scale indicate greater satisfaction.

#### *Social Roles Questionnaire (SRQ)*

The SRQ<sup>17</sup> is a 13-item inventory that measures participants' general views on gender roles using a five-point Likert scale ranging from strongly disagree to strongly agree. The scale measures two factors: gender-transcendent with five items and gender-linked and culturally specific binary roles of men and women with seven items. For previous studies, the

Cronbach's alpha was 0.66 for the gender-transcendent subscale and 0.91 for the gender-linked subscale.<sup>17</sup> The SRG has been used in cross-cultural studies and shows acceptable psychometric properties with other Muslim samples.<sup>18</sup> An example item is "Mothers should work only if necessary," and higher scores on the scale indicate greater support for gender roles.

#### Reliability of measures

The calculated Cronbach's alpha was 0.75 for all Likert-type scale items combined in the questionnaire (31 items) for 30 participants' responses used as a pilot sample. The Cronbach's alphas ranged between 0.72 and 0.83 for each measure, indicating good reliability (see Table 1).

#### Procedure

The study questionnaire was sent to participants online with a consent form, and participants were asked to answer all the questions. The questionnaire consists of four parts. First, the demographic information and physical and mental health of the participants; second, the healthcare accessibility measure; third, the Satisfaction with Family Life scale (SWFL); and fourth, the Social Roles Questionnaire (SRQ).

#### Data analysis

We used SPSS software for data analysis. We conducted descriptive analysis as well as performed a hierarchical regression test to explore our research hypotheses. The hierarchical regression included three models. The first model utilized the sociodemographic factors, the second model added ratings of physical and mental health, and the third model added satisfaction with family life and gender role beliefs. These independent variables were used to predict the dependent variable of the women's perceived access to healthcare.

## Results

#### Descriptive analysis

The study's 494 participants were predominantly Saudi (97.6%), lived in rural areas (80.4%), and were young (42% were 20–25 years old). Most were single (55.1%) and had a college degree (73.9%) but nearly half were unemployed (49.2%). Income levels were mixed, with 29.1% earning 6000–9000 SAR (US\$1600–2400) per month and 24.5% earning 9000–12000 SAR (US\$2400–3200) per month. About half (47.4%) lived in households with 4–6 people, and 45.3% had 1–3 children under the age of 18 years in their

household. Most (86.2%) owned their homes rather than rented, and 45.5% engaged in at least 2.5 h of moderate physical activity per week (see Table 2).

As can be seen in Table 3, 56.9% of the total sample evaluated their physical health as excellent, 23.7% as very good, 12.1% as good, 5.5% as fair, and 1.8% as poor. Also, in rating mental health, including their mood and their ability to think, 49.4% of the total sample evaluated their mental health as excellent, 24.3% as very good, 12.1% as good, 8.3% as fair, and 5.9% as poor. However, the difference was large between Saudis and non-Saudis, in favor of the Saudis having the highest mental health self-evaluation rates.

#### Regression analysis

The hierarchical regression explored the predictive impact of the independent variables in three steps or models, as explained previously. Multi-collinearity tests revealed the VIF (variance inflation factor) for all models were less than three, indicating no issues with multi-collinearity. Also, all models' residuals were normally distributed; thus, the assumptions for regression analysis were met.

Table 4 shows the R-squared, adjusted R-squared, and R-squared changes for each step in the hierarchical regression. The third model had the highest R-squared value, 0.634. This suggests that all predictors in the model together account for 63.4% of the variance in perceptions of healthcare accessibility. The Durbin–Watson value, which is close to 2, indicates that there is no autocorrelation between the errors. Table 5 shows that the ANOVA results for the three models were statistically significant, with all *p*-values less than 0.01. However, not all the variables in each model were statistically significant predictors of women's healthcare access.

In the first model, we entered the predictive variables of nationality, age, marital status, current work status, education level, income, place of living, own or rent a home, number of people live in the home, and number of people in the house under the age of 18 years. In this first model, all variables were significant predictors of healthcare access (*p* < 0.05) except for own or rent a home, *p* = 0.167. In the second model, we entered the predictive variables from the first model plus participants' ratings of their physical health, their ratings of their mental health, and their physical activity. In the second model, all of the variables were significant predictors of healthcare access (*p* < 0.05) except for current work status, *p* = 0.077. The third and final model consisted of all the predictive variables from the first and second models plus satisfaction with family life and gender role beliefs. In the final model, all the variables significantly predicted healthcare access (*p* < 0.05) except current work status, *p* = 0.052. See Table 6 for more details.

In support of our first hypothesis, results show that Saudi nationality is significantly associated with healthcare accessibility,  $\beta = -0.098$ , *p* < 0.001; the beta coefficient is negative because data was coded as Saudi = 1 and Non-Saudi = 2. This means that Saudi women nationals are more likely to have access to healthcare than non-Saudi women. Age is also significantly associated with greater healthcare accessibility,  $\beta = 0.068$ , *p* < 0.001. Married or divorced women are more likely to have access to healthcare than women who are

**Table 1: Reliability result.**

Dimensions	N of items	Cronbach's alpha
Healthcare Accessibility	13	0.716
Satisfaction with family life Scale (SWFL)	5	0.830
Social Roles Questionnaire (SRQ)	13	0.728
Overall	31	0.748

**Table 2: Description of sample participants (N = 494).**

Demographics	Groups	n	%
Nationality	Saudi	482	97.6
	Non-Saudi	12	2.4
Urban/Rural residency	Urban	97	19.6
	Rural	397	80.4
Age range (years)	20–25	208	42.0
	26–35	196	39.7
	36–45	66	13.4
	46+	24	4.9
Marital status	Single	272	55.1
	Married	210	42.5
	Divorced/Widow	12	2.4
Highest education	Read and write	5	1.0
	Primary or less	5	1.0
	High school or equivalent	54	10.9
	Diploma	53	10.7
	College (Bachelor degree)	365	73.9
Current work	Graduate education (Master or PhD)	12	2.4
	Student	174	35.2
	Employed	77	15.6
Average family monthly income	Unemployed	243	49.2
	Less than 3000R (US\$800)	52	10.5
	3000R–6000R (US\$800–1600)	89	18.0
	6000R–9000R (US\$1600–2400)	144	29.1
	9000R–12000R (US\$2400–3200)	121	24.5
	12000R–15000R (US\$3200–4000)	45	9.1
Number of people living in the house	15000R+ (US\$4000+)	43	8.7
	1–3	129	26.1
	4–6	234	47.4
	7–9	102	20.6
Number of people in the house under age 18 years	9+	29	5.9
	None	229	46.4
	1–3	224	45.3
	4–6	36	7.3
House is own or rent?	6+	5	1.0
	Own	426	86.2
Do you do at least 2.5 h of moderate physical activity every week?	Rent	68	13.8
	Yes	225	45.5
	No	269	54.5

**Table 3: Rating the physical health and mental health of the participants.**

Items	Categories	Excellent	Very Good	Good	Fair	Poor
In general, how would you rate your physical health?	Total	56.9%	23.7%	12.1%	5.5%	1.8%
	Saudi	58.1%	23.7%	12.0%	5.2%	1.0%
	Non-Saudi	8.3%	25.0%	16.7%	16.7%	33.3%
In general, how would you rate your mental health, including your mood and your ability to think?	Total	49.4%	24.3%	12.1%	8.3%	5.9%
	Saudi	50.4%	24.7%	11.8%	7.9%	5.2%
	Non-Saudi	8.3%	8.3%	25.0%	25.0%	33.3%

**Table 4: Hierarchical multiple regression model summary.**

Model R	R square	Adjusted R square	Std. error of the estimate	Change statistics					Durbin–Watson	
				R square change	F change	df1	df2	Sig. F change		
1	0.794	0.630	0.620	0.32944	0.630	82.318	10	483	<0.001	
2	0.795	0.632	0.621	0.32954	0.002	0.895	3	480	0.443	
3	0.796	0.634	0.622	0.32957	0.001	0.966	2	478	0.381	1.877

**Table 5: Hierarchical multiple regression ANOVA results.**

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	138.784	10	13.878	2254.859	<0.001
	Residual	2.973	483	0.006		
	Total	141.757	493			
2	Regression	139.429	13	10.725	2211.295	<0.001
	Residual	2.328	480	0.005		
	Total	141.757	493			
3	Regression	139.746	15	9.316	2214.326	<0.001
	Residual	2.011	478	0.004		
	Total	141.757	493			

single/never married,  $\beta = 0.287$ ,  $p < 0.001$ . Women who are unemployed are less likely to have access to healthcare than women who are employed,  $\beta = -0.041$ ,  $p < 0.001$ . Women with higher levels of education are more likely to have access to healthcare than people with lower levels of education,  $\beta = 0.103$ ,  $p < 0.001$ . Women with higher average monthly incomes are more likely to have access to healthcare than women with lower average monthly incomes,  $\beta = 0.069$ ,  $p < 0.001$ .

Moreover, women who live in rural areas are less likely to have access to healthcare than women who live in urban areas,  $\beta = -0.099$ ,  $p < 0.001$ . Family size was positively associated with healthcare accessibility,  $\beta = 0.079$ ,  $p < 0.001$ . This means that women who live in larger families are more

**Table 6: The coefficients of the hierarchical multiple regression models for predicting healthcare accessibility.**

Model	Predictors (Independent variables)	Unstandardized coefficients		Standardized coefficients	T	Sig.
		B	Std. error	Beta		
1	(Constant)	1.859	0.067		27.883	0.000
	Nationality	-0.234	0.027	-0.080	-8.653	<0.001
	Age	0.098	0.015	0.154	6.418	<0.001
	Marital status	0.128	0.017	0.131	7.385	<0.001
	Current work	-0.035	0.013	-0.058	-2.727	0.007
	Highest education	0.195	0.008	0.301	24.154	<0.001
	Average monthly income	0.073	0.010	0.176	7.013	<0.001
	Place of living	-0.167	0.019	-0.124	-8.953	<0.001
	Own or rent a home	-0.015	0.011	-0.010	-1.385	0.167
	Number of people live in the home	0.082	0.009	0.151	8.980	<0.001
	Number of people in the house under age 18	0.117	0.016	0.145	7.417	<0.001
2	(Constant)	1.163	0.118		9.822	0.000
	Nationality	-0.163	0.025	-0.055	-6.555	<0.001
	Age	0.092	0.014	0.144	6.756	<0.001
	Marital status	0.228	0.024	0.232	9.490	<0.001
	Current work	-0.021	0.012	-0.036	-1.770	0.077
	Highest education	0.148	0.011	0.229	13.113	<0.001
	Average monthly income	0.095	0.011	0.230	8.686	<0.001
	Place of living	-0.167	0.017	-0.124	-10.074	<0.001
	Own or rent a home	-0.020	0.010	-0.013	-2.035	0.042
	Number of people live in the home	0.083	0.009	0.153	9.670	<0.001
	Number of people in the house under age 18	0.104	0.014	0.129	7.417	<0.001
3	Physical health	0.101	0.010	0.210	10.205	<0.001
	Mental health	0.051	0.014	0.115	3.736	<0.001
	Physical activity	0.189	0.030	0.175	6.186	<0.001
	(Constant)	1.353	0.133		10.144	0.000
	Nationality	-0.098	0.027	-0.033	-3.665	<0.001
	Age	0.068	0.013	0.107	5.136	<0.001
	Marital status	0.287	0.024	0.292	12.117	<0.001
	Current work	-0.041	0.013	-0.069	-3.129	0.002
	Highest education	0.103	0.014	0.159	7.340	<0.001
	Average monthly income	0.069	0.011	0.167	6.465	<0.001
	Place of living	-0.099	0.020	-0.073	-5.014	<0.001
Own or rent a home	-0.018	0.009	-0.012	-1.948	0.052	
Number of people live in the home	0.079	0.008	0.146	9.826	<0.001	
Number of people in the house under age 18	0.097	0.014	0.120	7.076	<0.001	
Physical health	0.062	0.012	0.129	5.312	<0.001	
Mental health	0.070	0.014	0.159	5.191	<0.001	
Physical activity	0.220	0.029	0.204	7.686	<0.001	
Satisfaction with family life Scale (SWFL)	0.079	0.018	0.214	4.407	<0.001	
Social Roles Questionnaire (SRQ)	-0.145	0.021	-0.144	-7.020	<0.001	

likely to have access to healthcare than women who live with smaller families. The number of people under the age of 18 living in the home was positively associated with healthcare accessibility,  $\beta = 0.097$ ,  $p < 0.001$ , meaning that women who live in homes with more children are more likely to have access to healthcare.

Results show support for our second hypothesis that physical health was positively associated with healthcare accessibility,  $\beta = 0.062$ ,  $p < 0.001$ . Mental health was also positively associated with healthcare accessibility,  $\beta = 0.070$ ,  $p < 0.001$ , as was physical activity,  $\beta = 0.220$ ,  $p < 0.001$ . This means that women who are physically active and who have good physical and mental health are more likely to have access to healthcare than women who are not physically active, or have lower physical and mental health.

Our third hypothesis was also supported. Satisfaction with family life was positively associated with healthcare accessibility,  $\beta = 0.079$ ,  $p < 0.001$ , which means that women who are satisfied with their family life are more likely to have access to healthcare than women who are not. Our fourth hypothesis was also supported in that scores on the Social Roles Questionnaire were negatively associated with healthcare accessibility,  $\beta = -0.145$ ,  $p < 0.001$ . This means that women who adhere to more traditional norms and beliefs of gender roles are less likely to have access to healthcare than women with less traditional gender role beliefs.

## Discussion

In our research, we focused on the relationship between Jazan women's accessibility to government healthcare services and demographic factors, family life satisfaction, and gender role beliefs. Saudi nationality was significantly associated with greater access to healthcare, indicating that Saudi nationals are more likely to have access to healthcare than non-Saudi nationals. While the proportion of non-Saudi nationals in our sample was relatively small, requiring caution in interpreting this particular finding, previous research has established similar disparities between nationals and non-nationals.<sup>19</sup> This finding may suggest that non-Saudi women rely more on utilizing private healthcare provided by insurance companies, ideally allowing greater freedom of choice. This issue is not specific to KSA, though, as it is common in multiple Gulf and Arab countries.<sup>20</sup>

Age was a significant predictor of healthcare accessibility, with older women having greater access to healthcare,<sup>21</sup> echoing previous research findings in KSA that have also found the dearth of service for disadvantage groups include singles, young, and rural individuals.<sup>22</sup> Among younger women, a change of lifestyle (e.g., obesity or smoking) could lead to further increase in unfavorable chronic disease outcomes which requires effective effort ensuring the availability of healthcare access to this group.<sup>23</sup> This finding emphasizes the importance of tailoring healthcare services to cater to the unique needs of different age cohorts, such as senior citizens or pubescent girls, who may require specialized healthcare. Marital status played a role, as married or divorced women were more likely to have healthcare access than never married single women. Health policies and interventions should consider the significance of social networks and support structures in improving

healthcare accessibility, particularly for single individuals who may lack such support.

Employment status and educational attainment were also influential factors, with employed women and those with higher education levels more likely to have healthcare access.<sup>24</sup> The latter underscores the importance of promoting education and socioeconomic development as critical strategies for enhancing healthcare accessibility. The role of education and employment in women access to healthcare is critical. Because the majority of our sample is rural, it might be hard for these women to accept jobs opportunity in locations far from their families, which continue the issue of less healthcare accessibility by this group as reported by earlier research.<sup>21</sup> Interestingly, our results also show that physical and mental health predicate healthcare accessibility, which could mean that women who access healthcare facilities are more aware of behaviors that impact their physical and mental health and therefore they enjoy better health outcomes. Ideally, need should be the major factor in the ability to access healthcare, but other factors clearly have an effect. One of those factors could be women with more access have better mental and physical health.

Moreover, women's healthcare accessibility varied based on average monthly income, with higher-income women having better access than lower-income women. Rural women residents are less likely to have access to healthcare services, and other studies have also shown that rurality is associated with several risk factors such as poor mental and physical health, higher obesity rates and other chronic illnesses, and less utilization of healthcare services.<sup>25</sup> Similarly, findings from Riyadh regions revealed lack of equitable healthcare delivery as shown in the significant disparities between rural and urban patients in receiving treatment.<sup>26</sup> Rural women could be subject to limited physical activities or may be reluctant to seek health care because of cultural or financial constraints, lack of trained physicians, insufficient public transportation, lack of transportation, or poor availability of services in general in the southern region of KSA.<sup>27</sup> Addressing these factors is crucial for enhancing healthcare access for women and achieving equitable healthcare outcomes. Tailoring interventions to the specific needs and circumstances of different demographic groups can help address barriers that hinder women's healthcare access, especially because women are potentially at a greater risk of developing deadly diseases such as cardiovascular disease and diabetes than are men.<sup>25</sup>

Our study examined the influence of family life satisfaction and gender role beliefs on women's healthcare accessibility. The results indicated that higher levels of family life satisfaction were associated with greater access to healthcare for women. This suggests that women who experience higher satisfaction in their family lives may be more likely to prioritize their healthcare needs and seek appropriate medical care.<sup>28</sup> This finding provides support for the hypothesis that women with high-quality family relationships may have more family support enabling them to use healthcare facilities and that cultural factors such as family permission are detrimental to women's healthcare accessibility. This finding may indicate family has a strong influence on women's health decision-making in KSA. Decisions on issues related to doctor visits were often made through communication

among family members and can influence healthcare utilization, especially for women who rely on a male guardian to drive them to the healthcare facilities. This finding could also mean that having access to healthcare services positively impact the quality of women's family relationships. The result does not explain the role of family relationship quality in determining healthcare accessibility, but future research should explore this issue.

Furthermore, adherence to traditional gender role beliefs was negatively associated with healthcare accessibility. Women who believed in traditional gender roles were less likely to receive healthcare.<sup>24,28</sup> This finding highlights the importance of challenging societal gender norms and stereotypes that may hinder women's access to healthcare services. This finding could mean that women who hold traditional gender views may refuse to see healthcare providers from the opposite sex, which may result in limiting their use of healthcare services. Studies in provider gender preference for women in other Arab and Middle Eastern contexts have been remarkable consistent in their findings that women prefer female physicians.<sup>29</sup> Efforts should be made to ensure there are more female healthcare providers, especially in rural and remote areas to empower women to overcome barriers imposed by traditional gender norms.

#### Limitations

While the findings shed light on healthcare accessibility issues women face in rural areas of KSA, it is essential to recognize that women's experiences in urban settings and bigger cities may differ. Another limitation of this study is the specific sample of participants, and the findings may only partially represent part of the rural population of Saudi women. For example, only 2.4% of the sample are non-Saudi. This makes it hard to generalize the level of healthcare accessibility for non-Saudi women, especially because the KSA government requires that non-Saudis working in private sectors to have some level of healthcare coverage provided by their employers. Despite these limitations, this study is a valuable starting point for exploring women's healthcare issues in KSA.

#### Conclusion

By investigating healthcare accessibility and its associations with various sociodemographic factors, our study addresses essential aspects of gender equity in the health sector in the KSA. The findings highlight differences in healthcare accessibility based on various sociodemographic factors, including nationality, age, marital status, employment, education, income, and geographic location. By identifying these factors, our study emphasizes the need for targeted interventions to ensure equitable access to healthcare for all women, regardless of location. The research also recognizes the efforts made by KSA in empowering women and promoting gender equity in the health sector.<sup>2</sup> Furthermore, this study holds relevance in the broader context of achieving the UN's Sustainable Development Goals (SDGs) related to health and gender equity. The findings highlight the need for aligning healthcare policies and interventions with the SDGs, providing valuable insights for policymakers and

stakeholders in designing strategies to meet these goals. By considering these implications and implementing targeted interventions, the healthcare system in KSA can continue to strive towards achieving more equitable healthcare access and better health outcomes for all individuals, particularly women in rural areas.

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#### Conflict of interest

The authors have no conflicts of interest to declare. We certify that the submission is original work and is not under review at any other publication.

#### Ethical approval

The study was approved by the Human Research Ethics Committee of Jazan University in the KSA project number REC-43/11/271.

#### Authors contributions

**Sarah Almalki:** Conceptualization, Methodology, Funding acquisition, Data collection, Data analysis, Writing- Original draft preparation. **Brien K. Ashdown:** Conceptualization, Funding acquisition, Supervision, Writing- Reviewing and Editing. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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